

Title	REPORT ON THE MOLLUSCA CHIEFLY COLLECTED BY THE S. S. SOYO-MARU OF THE IMPERIAL FISHERIES EXPERIMENTAL STATION ON THE CONTINENTAL SHELF BORDERING JAPAN DURING THE YEARS 1922-1930 -PART 2. SCAPHOPODA-
Author(s)	Habe, Tadashige
Citation	PUBLICATIONS OF THE SETO MARINE BIOLOGICAL LABORATORY (1957), 6(2): 127-136
Issue Date	1957-12-25
URL	http://hdl.handle.net/2433/174583
Right	
Type	Departmental Bulletin Paper
Textversion	publisher

REPORT ON THE MOLLUSCA CHIEFLY COLLECTED BY THE
S. S. SOYÔ-MARU OF THE IMPERIAL FISHERIES
EXPERIMENTAL STATION ON THE CONTINENTAL SHELF
BORDERING JAPAN DURING THE YEARS 1922-1930

PART 2. SCAPHOPODA¹⁾²⁾

TADASHIGE HABE

Amakusa Marine Biological Laboratory (Kyushu University)

With 11 Text-figures and 1 Table

In this second report the writer deals with 13 species of tooth shell or Scaphopoda which were collected from 66 stations during the survey of the continental shelf bordering Japan.

Class SCAPHOPODA

Family Dentaliidae

Genus *Dentalium* LINNÉ 1758

Subgenus *Fissidentalium* FISCHER 1885

1. *Dentalium* (*Fissidentalium*) *yokoyamai* MAKIYAMA

1920 *Dentalium complexum* YOKOYAMA, Mem. Coll. Sci. Imp. Univ. Tokyo, **39** (6), p. 101, pl. 6, fig. 27 (non DALL).

1931 *Dentalium yokoyamai* MAKIYAMA, Mem. Coll. Sci. Kyoto Imp. Univ., (B) **7** (1), p. 44, pl. 1, fig. 1.

1954 *Dentalium* (*Fissidentalium*) *yokoyamai* KIRA, Illust. Jap. Shells, pl. 40, fig. 12.

Locality: St. 381, Off Owase, Kumano-Nada, 329 m.

Distribution: Tosa Bay, Shikoku to Kumano-Nada, Honshu.

Remarks: This shell is large and solid, slightly curved towards the posterior end, white and has the numerous distinct longitudinal ribs. The aperture is circular. The ventral fissure at the apex is narrow but rather long.

1) Contributions from the Seto Marine Biological Laboratory, No. 300.

2) Contributions from the Amakusa Marine Biological Laboratory (Kyushu University), No. 108.

2. *Dentalium (Fissidentalium) lima* KURODA MS.

Locality: St. 286, Seno-umi Bank in Suruga Bay, 123 m.

Distribution: Tosa Bay, Shikoku to Suruga Bay, Honshu.

Remarks: This is an undescribed species closely allied to *D. yokoyamai*.

3. *Dentalium (Fissidentalium) hungerfordi* PILSBRY et SHARP

(Fig. 1)

1888 *Dentalium compressum* SOWERBY, Proc. Zool. Soc. London, p. 569, pl. 28, fig. 18 (non WATSON).

1897 *Dentalium hungerfordi* PILSBRY et SHARP, Man. Conch., 17, p. 84, pl. 6, fig. 88.

1931 *Dentalium (Fissidentalium) hungerfordi* S. HIRASE, Jour. of Conch., 19, p. 137, pl. 3, fig. 8.

1934 *Dentalium (Fissidentalium) hungerfordi* S. HIRASE, Coll. Jap. Shells, pl. 127, fig. 2.

1953 *Dentalium (Fissidentalium) hungerfordi* HABE, Gen. Jap. Shells, 4, p. 293, fig. 749.

1954 *Dentalium (Fissidentalium) hungerfordi* KIRA, Illust. Jap. Shells, pl. 40, fig. 10.

Localities: St. 240, Off Zushi, Sagami Bay, 192 m; St. 384, Off Toba, the entrance of Ise Bay, 32–21 m.

Distribution: Tosa Bay, Shikoku to Sagami Bay, Honshu and China.

Remarks: This is quite characteristic in having the shell compressed dorsoventrally. The shell is fresh orange in colour and marks numerous longitudinal riblets all over the surface. The fissure is long and narrow.

Subgenus *Dentale* DA COSTA 1778

4. *Dentalium (Dentale) weinkauffi* DUNKER

(Fig. 7)

1877 *Dentalium weinkauffi* DUNKER, Malak. Bl., 24, p. 68; Index Moll. Mar. Jap., p. 153, pl. 5, fig. 1 (1882).

1931 *Dentalium (Antalis) weinkauffi* S. HIRASE, Jour. of Conch., 19, p. 135, pl. 3, fig. 4.

1934 *Dentalium (Antalis) weinkauffi* S. HIRASE, Coll. Jap. Shells, pl. 126, fig. 4.

1953 *Dentalium (Dentale) weinkauffi* HABE, Gen. Jap. Shells, 4, p. 294, fig. 747.

1954 *Dentalium (Dentale) weinkauffi* KIRA, Illust. Jap. Shells, pl. 40, fig. 6.

Localities: St. 11, Off Chōshi, Chiba Pref., 375 m; St. 212, Off Tanabe, Wakayama Pref., 181 m; St. 240, Off Zushi, Sagami Bay, 192 m; St. 319, Off Nobeoka, Miyazaki Pref., 210 m; St. 365, Off Hamashima, Mie Pref., 93 m; St. 371, Off Atsumi Peninsula, Enshū-Nada, 84 m; St. 384, Off Toba, the entrance of Ise Bay, 32–21 m; St. 396, Off Tanabe, Wakayama Pref., 68 m; St. 470, Off Hakata Bay, Tsushima Strait, 73 m; St. 484, Off Yutani Bay, Yamaguchi Pref., 93 m; Sts. 491, 493 494 and 495, Off Hamada, Shimane Pref., 112 m, 124 m, 110 m and 146 m; Sts. 503 and 504, Off Oki in Japan Sea, 146 m and 106 m; St. 572, Off Noto Peninsula, 132 m.

Distribution: Kyushu, Shikoku and Honshu.

Remarks: The shell is long and narrow, slightly curved at the hinder part. The colouration is pale orange when fresh, while white when dead. The longitudinal ribs well developed in the posterior part are becoming obsolete to the anterior. The aperture is quite round and the fissure at the posterior end is absent.

5. *Dentalium (Dentale) rhabdotum* PILSBRY

(Fig. 11)

1905 *Dentalium rhabdotum* PILSBRY, Proc. Acad. Nat. Sci. Phila., 57, p. 116, pl. 5, figs. 45-47.

1933 *Dentalium (Antalis) rhabdotum* KURODA et KIKUCHI, Venus, 4 (1), p. 8, pl. 1, figs. 1, 2.

1953 *Dentalium (Dentale) rhabdotum* HABE, Gen. Jap. Shells, 4, p. 294, fig. 746.

Localities: St. 4, Off Katsu-ura, Chiba Pref., 287 m; St. 11, Off Chôshi, Chiba Pref., 375 m; St. 205, Off Shingû. Kumano-Nada; 224 m; St. 207, Off Kushimoto, Wakayama Pref., 229 m; St. 216, Off Kannoura, Kôchi Pref., 274 m; St. 240, Off Zushi, Sagami Bay, 192 m; St. 256, Off Shimoda, Sagami Bay, 549 m; Sts. 302 and 304, Off Toizaki, Miyazaki, Pref., 582 m and 241 m; St. 321, Off Nobeoka, Miyazaki Pref., 457 m; St. 366, Off Hamashima, Kumano-Nada, 494 m; St. 349, Off Ishima, Kii Strait, 152 m; St. 392, Off Ishima, Kii Strait, 61 m; St. 417, Off Yamakawa, Kagoshima Pref., 192 m; Sts. 469 and 470, Off Hakata Bay, Tsushima Strait, 91 m and 73 m; Sts. 477 and 479, Off Fusan, Korea Strait, 99 m and 148 m; Sts. 481 and 486, Off Tsushima, 143 m and 139 m; St. 495, Off Hamada, Shimane Pref., 146 m; St. 498, Off Shimane Peninsula, 139 m; Sts. 503 and 506, Off Oki in Japan Sea, 146 m and 176 m; Off Hamasaka, Hyôgo Pref., 183 m; St. 541, Off Yosa Peninsula, 150 m; Sts. 595, 599, 602 and 611, Off Sado in Japan Sea, 145 m, 181 m, 205 m and 143 m; Sts. 619 and 622, Off Tobishima in Japan Sea, 338 m and 218 m; St. 640, Off Tsugaru, Aomori Pref., 179 m.

Distribution: Kyushu, Shikoku and Honshu.

Remarks: This is the dull white shell with more or less blackish incrustation and is nearly straight but narrow. The surface is sculptured with the longitudinal ribs throughout, in each interval of which appear the secondary ribs. The aperture is circular and the shallow notch at the narrow posterior end is observed in the perfect specimen.

6. *Dentalium (Dentale) marukawai* OTUKA

1933 *Dentalium marukawai* OTUKA, Venus, 4, p. 159, textfigs. a-f.

Locality: St. 425, Off Koshiki-jima, Kyushu, 300 m.

Distribution: Ryukyus, Kyushu and Tosa Bay, Shikoku.

Remarks: This species is related to *D. (D.) weinkauffi*, but differs from that species in more slender shell coloured in cream white.

Subgenus *Laevidentalium* COSSMANN 18887. *Dentalium* (*Laevidentalium*) *crocinum* DALL

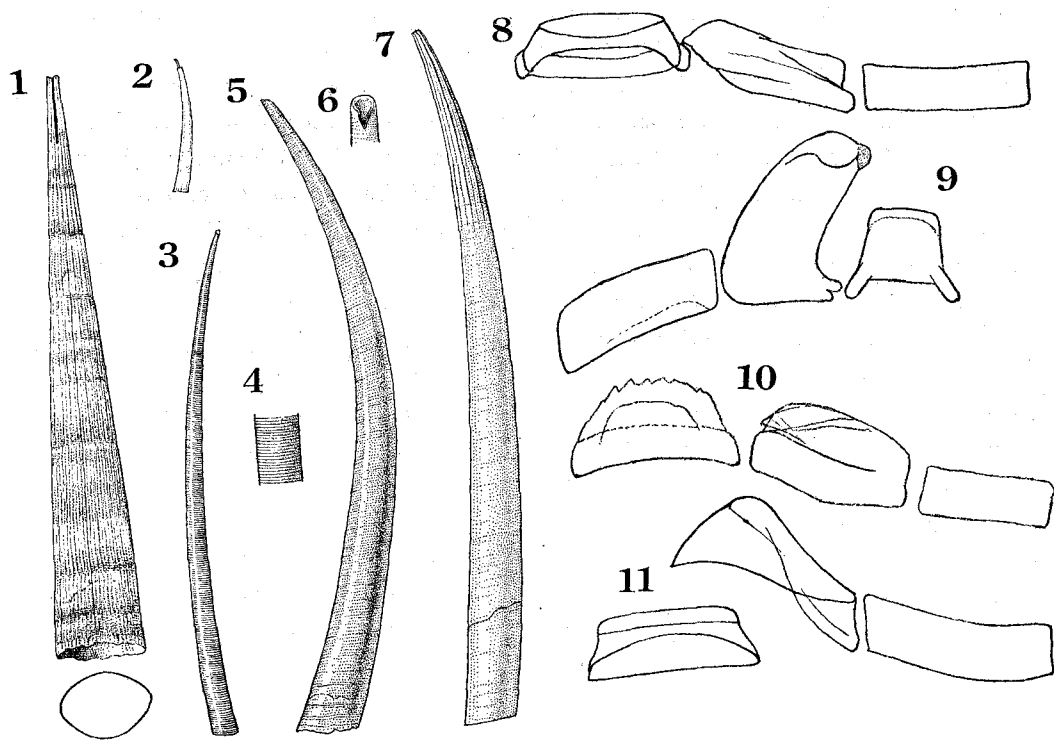
(Figs. 5, 6)

1905 *Dentalium crocinum* DALL, Smiths. Misc. Coll., 50, p. 169; Proc. U. S. Nat. Mus., 66 (17), p. 16, pl. 27, fig. 6 (1925).

1953 *Dentalium* (*Laevidentalium*) *crocinum* HABE, Gen. Jap. Shells, 4, p. 294, figs. 751-2.

1954 *Dentalium* (*Laevidentalium*) *crocinum* KIRA, Illust. Jap. Shells, pl. 40, fig. 9.

Localities: St. 4, Off Katsu-ura, Chiba Pref., 287 m; St. 203, Off Owase, Kumano Nada, 249 m; St. 392, Off Ishima, Kii Strait, 61 m; St. 488, Off Hamada, Shimane Pref., 406 m.



Figs. 1-7. Shells: 1. *Dentalium* (*Fissidentalium*) *hungerfordi* PILSBRY et SHARP, 2. *D. (Episiphon) makiyamai* KURODA et KIKUCHI, 3. *Onniglypta cerina* (PILSBRY), 4. The enlarged surface sculpture of the same, 5. *D. (Laevidentalium) crocinum* DALL, 6. The apical opening of the same, 7. *D. (Dentale) weinkauffi* DUNKER, 8-11. Radulae: 8. *D. (Fissidentalium) vernelei* SOWERBY (not present in the collection of this survey) as an example of *Fissidentalium*, 9. *Entalina (Entalinopsis) nivos* (KURODA et KIKUCHI), 10. *Onniglypta cerina* (PILSBRY), 11. *D. (Dentale) rhabdotum* PILSBRY.

Distribution: Shikoku and Honshu (north to Bôso Peninsula and Off Hamada, on the Japan Sea coast).

Remarks: The shell is smooth and polished without any sculpture except growth lines, solid and reddish yellow in colour, gradually increasing in diameter to the mouth and gently curved. The aperture is entirely circular and the apex is notched on the ventral side.

8. *Dentalium (Laevidentalium) coruscum* PILSBRY

1905 *Dentalium coruscum* PILSBRY, Proc. Acad. Nat. Sci. Phila., 57, p. 117, pl. 5, figs. 42, 43.

1933 *Dentalium (Laevidentalium) coruscum* KURODA et KIKUCHI, Venus, 4, p. 10, pl. 1, fig. 7.

Localities: St. 395, Off Tanabe, Wakayama Pref., 46 m; Sts. 488 and 493, Off Hamada, Shimane Pref., 406 m and 124 m; St. 497, Off Shimane Peninsula, 143 m; St. 504, Off Oki in Japan Sea, 106 m.

Distribution: Shikoku (Tosa Bay); Honshu (off Wakayama Pref. to Kashima-Nada) and Japan Sea.

Remarks: This species is related to the preceding species, but differs from the latter in having the more slender white shell.

Subgenus *Fistiaria* STOLICZKA 1868

9. *Dentalium (Fistiaria) nipponicum* YOKOYAMA

1922 *Dentalium (Fistiaria) nipponicum* YOKOYAMA, Jour. Coll. Sci. Imp. Univ. Tokyo, 44 (1), p. 119, pl. 6, fig. 7.

Locality: St. 251, Off Itô, Sagami Bay, 165 m.

Distribution: Sagami Bay and Toyama Bay.

Remarks: This small species has thin, smooth and polished shell which curves slightly. The apical slit is linear and rather long.

Subgenus *Episiphon* PILSBRY et SHARP 1897

10. *Dentalium (Episiphon) makiyamai* KURODA et KIKUCHI

(Fig. 2)

1927 *Dentalium (Episiphon) filum* MAKIYAMA, Mem. Coll. Sci. Kyoto Imp. Univ., (B) 3 (1), p. 58 (non SOWERBY).

1933 *Dentalium makiyamai* KURODA et KIKUCHI, Venus, 4 (1), p. 11, pl. 1, fig. 8.

1953 *Dentalium (Episiphon) makiyamai* HABE, Gen. Jap. Shells, 4, p. 296, fig. 767.

Localities: St. 4, Off Katsu-ura, Chiba Pref., 287 m; St. 199, Off Hamashima, Kumano-Nada, 207 m; St. 371, Off Atsumi Peninsula, Enshû-Nada, 84 m; St. 392, Off Ishima, Kii Strait, 61 m; Sts. 432 and 452, Off Gotô Islands, 148 m and 154 m; Sts. 459

and 481, Off Tsushima, 115 m and 143 m; St. 484, Off Yutani Bay, Yamaguchi Pref., 93 m; Sts. 488 and 492, Off Hamada, Shimane Pref., 406 m and 132 m; Sts. 503 and 504, Off Oki in Japan Sea, 146 m and 106 m; St. 580, Off Nanao, Toyama Bay, 135 m.

Distribution: Kyushu, Shikoku and Honshu.

Remarks: This is characterized by the apex with a narrow tube projection from the centre of the disc, closing the posterior end. The shell is smooth and polished, orange red in colour.

Genus *Omniglypta* KURODA et HABE 1953

11. *Omniglypta cerina* (PILSBRY)

(Figs. 3, 4, 10)

1905 *Dentalium* (*Rhabdus*) *cerinum* PILSBRY, Proc. Acad. Nat. Sci. Phila., 57, p. 117, pl. 5, figs. 40, 41.

1953 *Omniglypta cerina* HABE, Gen. Jap. Shells, 4, p. 296, figs. 753, 754.

Locality: St. 452, Off Gotô Islands, Kyushu, 154 m.

Distribution: Tosa Bay, Shikoku; Honshu and Off Goto Islands, Kyushu.

Remarks: This is quite characteristic in having the densely set annular sculpture all over the surface. The shell is thin and nearly straight and white in colour. The aperture is circular.

Family Siphonodentaliidae

Genus *Entalina* MONTEROSATO 1872

Subgenus *Entalinopsis* nov.

This new subgenus is closely related to *Entalina* s. st. in the shape of shell, but in the former the primary longitudinal costae are generally six in number throughout the shell, while in the latter they are five near the posterior end but the dorsal one of them becomes obsolete quickly, forming the four angled section by the other four and these four costae are reduced away near the aperture in some species. The radular feature also discriminates between *Entalina* and *Entalinopsis*. In the latter, the central tooth is small, trapezoidal slightly narrowed anteriorly and has a small projection on the base of each side, which lacks in *Entalina*. The lateral tooth is stout, about twice as long as broad and has two obsoletely placed cusps in *Entalinopsis* while in *Entalina* the base of lateral tooth is broad and two large and several minute cusps are provided on the anterior margin of it. The marginal is transversely broad, trapezoidal in shape, presenting no denticulation as well as in that of *Entalina*.

Type species: *Dentalium nivosum* KURODA et KIKUCHI.

12. *Entalina (Entalinopsis) nivosa* (KURODA et KIKUCHI)

(Fig. 9)

1933 *Dentalium nivosum* KURODA et KIKUCHI, Venus, 4 (1), p. 7, pl. 1, figs. 9, 10, textfigs. 1, 2.1940 *Dentalium tugaruense* NOMURA et HATAI, Saitô Hô-on Kai Mus. Res. Bull., 19, p. 73, pl. 3, fig. 4.

Localities: St. 11 and 12, Off Chôshi, Chiba Pref., 375 m and 325 m; St. 211, Off Tanabe, Wakayama Pref., 190 m; St. 240, Off Zushi, Sagami Bay, 192 m; St. 286, Seno-umi Bank in Suruga Bay, 123 m; St. 300, Off Toizaki, Miyazaki Pref., 110 m; St. 321, Off Nobeoka, Miyazaki Pref., 457 m; St. 324, Off Uwajima, Ehime Pref., 106 m; St. 327, Off Okinoshima, Kochi Pref., 216 m; St. 343, Off Cape Muroto, Kochi Pref., 366 m; St. 365, Off Hamashima, Kumano-Nada, 93 m; St. 371, Off Atsumi Peninsula, Enshu-Nada, 84 m; St. 384, Off Toba, the entrance of Ise Bay, 32-21 m; St. 392, Off Ishima, Kii Strait, 61 m; St. 432, Off Goto Islands, 148 m; St. 470, Off Hakata Bay, Tsushima Strait, 73 m; St. 481, Off Fusan, Korea Strait, 143 m. Sts. 488, 491, 493 and 494, Off Hamada, Shimane Pref., 406 m, 112 m, 124 m and 110 m; St. 498, Off Shimane Peninsula, 139 m; Sts. 503 and 504, Off Oki in Japan Sea, 146 m and 106 m; St. 520, Off Shimane Peninsula, 75 m.

Distribution: Bungo Strait between Kyushu and Shikoku to off Chôshi, Chiba Pref. and off Gotô Islands to off Tsugaru Peninsula.

Remarks: This species has been considered a member of the genus *Dentalium* together with *Entalina habutae* until to-day, but the radula of this species is of the *Siphonodentalium*-type in having the small central tooth which is higher than broad. Therefore it should be transferred to the family Siphonodentaliidae from the family Dentaliidae. The shell is white and slightly curved, the section of which is six-angled with a distinct rib at each angle. The interspaces are concave near the apex and becoming flat in the posterior portion and four to six riblets appear on each interspace. The apical opening is simple.

13. *Entalina (Entalinopsis) habutae* (KURODA et KIKUCHI)1933 *Dentalium habutae* KURODA et KIKUCHI, Venus, 4 (1), p. 8, pl. 1, figs. 12, 13, textfigs. 3, 4.

Localities: St. 12, Off Chôshi, Chiba Pref., 325 m; St. 27, Off Taira, Fukushima Pref., 497 m; St. 212, Off Tanabe, Wakayama Pref., 181 m; St. 221, Off Aki, Tosa Bay, 209 m; St. 286, Seno-umi Bank in Suruga Bay, 123 m; St. 302, Off Toizaki, Miyazaki Pref., 582 m; St. 321, Off Nobeoka, Miyazaki Pref., 457 m; St. 324, Off Uwajima, Ehime Pref., 106 m; St. 366, Off Hamashima, Kumano-Nada, 494 m; St. 384, Off Toba, the entrance of Ise Bay, 32-21 m; St. 417, Off Makurazaki, Kagoshima Pref., 192 m; Sts. 459 and 481, Off Tsushima, 115 m and 143 m; St. 484, Off Yuya Bay, Yamaguchi Pref., 93 m; Sts. 486 and 488, Off Hamada, Shimane Pref., 139 m

and 406 m; Sts. 491 and 498, Off Shimane Peninsula, 112 m and 139 m; St. 503, Off Oki in Japan Sea, 146 m; St. 520, Off Shimane Peninsula, 75 m.

Distribution: Kyushu, Shikoku and Honshu (North to off Taira on the Pacific coast and to Toyama Bay on the Japan Sea coast).

Remarks: This is a small, white, slender shell which is slightly curved and six- or seven-angled with a distinct rib at each angle. The interspaces are concave at the apex but flattish toward the aperture, the surface of which are reticulated consisting of about twenty minute longitudinal striae intersected by fine growth lines.

Both *E. nivosa* and *E. habutae* are common on the continental shelf bordering Japan and are found in the Pleistocene deposits of Moeshima in Kagoshima Bay of Kyushu.

List of species collected, arranged by stations.

Station No.	Date	Locality		Depth (m)	Bottom water temp. (C°)	Bottom character	Species of scaphopods
		Lat. N.	Long. E.				
4	1926 June 16	34°37' 30"	140°06' 00"	287	8.9	S	<i>D. (D.) rhabdotum</i> <i>D. (L.) crocinum</i> <i>D. (E.) makiyamai</i>
11	June 23	35 25 00	141 10 40	375	8.2	S.G	<i>D. (D.) weinkauffi</i> <i>D. (D.) rhabdotum</i> <i>E. nivosa</i>
12	do	35 34 45	141 13 35	325	7.2	m.S	<i>E. nivosa</i> <i>E. habutae</i>
27	July 2	37 17 20	141 41 00	497	3.9	m.S	<i>E. habutae</i>
199	1927 July 11	34 10 30	136 54 30	207	9.7	s.M	<i>D. (E.) makiyamai</i>
203	July 12	33 59 20	136 21 40	249	11.0	m.S	<i>D. (L.) crocinum</i>
205	do	33 47 30	136 09 30	224	11.3	M.S. Sh	<i>D. (D.) rhabdotum</i>
207	July 13	33 30 40	135 57 15	229	11.7	S	<i>D. (D.) rhabdotum</i>
211	July 14	33 33 30	135 19 00	190	14.8	G Sh	<i>E. nivosa</i>
212	do	33 37 50	135 10 30	181	14.3	f.S	<i>D. (D.) weinkauffi</i> <i>E. habutae</i>
216	July 19	33 26 00	134 22 00	274	10.5	M	<i>D. (D.) rhabdotum</i>
221	July 20	33 20 30	135 54 00	209	14.1	m.S	<i>E. habutae</i>
240	Nov. 6	35 10 30	139 32 35	192	15.2	f.S.M	<i>D. (F.) hungerfordi</i> <i>D. (D.) weinkauffi</i> <i>D. (D.) rhabdotum</i> <i>E. nivosa</i>
251	Nov. 9	34 59 30	139 10 00	165	15.8	c.S.Sh	<i>D. (F.) nipponicum</i>
256	Nov. 10	34 44 25	139 08 30	549	7.2	Pum.St.	<i>D. (D.) rhabdotum</i>
286	July 4	34 36 10	138 26 30	123	14.3	s.M	<i>D. (F.) lima</i> <i>E. nivosa</i> <i>E. habutae</i>
300	1928 July 11	31 18 50	131 19 30	110	17.5	s.M	<i>E. nivosa</i>
302	July 12	31 05 10	131 32 10	582	6.2	M	<i>D. (D.) rhabdotum</i> <i>E. habutae</i>

(Continued)

Station No.	Date	Locality		Depth (m)	Bottom water temp. (C°)	Bottom character	Species of scaphopods
		Lat. N.	Long. E.				
	1928						
304	July 12	31°24' 40"	131°34' 40"	241	14.3	s.M	<i>D. (D.) rhabdotum</i>
319	July 16	32 35 50	131 57 38	210	13.1	S.Sh	<i>D. (D.) weinkauffi</i>
321	do	32 39 55	132 12 05	457	8.2	M	<i>D. (D.) rhabdotum</i> <i>E. nivosa</i> <i>E. habutae</i>
324	July 21	32 51 35	132 22 55	106	17.5	S	<i>E. nivosa</i> <i>E. habutae</i>
327	July 21	32 41 20	132 30 10	216	13.1	S.Sh	<i>E. nivosa</i>
343	July 28	33 11 30	134 03 00	366	9.1	G.M.Sh	<i>E. nivosa</i>
349	Aug. 1	33 42 50	134 50 30	152	18.4	G.M	<i>D. (D.) rhabdotum</i>
365	Aug. 10	34 12 09	136 44 28	93	15.7	M	<i>D. (D.) weinkauffi</i> <i>E. nivosa</i>
366	do	34 05 40	136 49 00	494	6.1	M	<i>D. (D.) rhabdotum</i> <i>E. habutae</i>
371	Aug. 13	34 30 15	137 21 45	84	17.3	M	<i>D. (D.) weinkauffi</i> <i>D. (E.) makiyamai</i> <i>E. nivosa</i>
	1927						
381	Dec. 3	34 03 45	136 32 45	329	—	—	<i>E. (F.) yokoyamai</i>
384	Dec. 4	34 29 15	136 57 45	38-21	—	—	<i>D. (F.) hungerfordi</i> <i>D. (D.) weinkauffi</i> <i>E. nivosa</i> <i>E. habutae</i>
	1928						
392	Feb. 23	33 51 00	134 52 40	61	—	S	<i>D. (D.) rhabdotum</i> <i>D. (L.) crocinum</i> <i>D. (E.) makiyamai</i> <i>E. nivosa</i>
395	Feb. 26	33 43 20	135 16 00	46	—	S	<i>D. (L.) coruscum</i>
296	Feb. 27	33 44 40	135 09 00	68	—	M	<i>D. (D.) weinkauffi</i>
	1929						
417	July 14	31 10 15	130 26 00	192	13.9	s.M.G	<i>D. (D.) rhabdotum</i> <i>E. habutae</i>
425	July 15	31 48 45	129 42 30	300	11.9	R	<i>D. (D.) marukawai</i>
432	July 18	32 40 15	129 18 00	148	16.0	s.M.Sh	<i>D. (E.) makiyamai</i> <i>E. nivosa</i>
452	July 22	32 43 15	127 44 30	154	14.2	m.S	<i>O. cerina</i>
459	July 23	34 09 00	128 49 45	115	14.6	M.S	<i>D. (E.) makiyamai</i> <i>E. habutae</i>
469	July 25	34 09 10	130 07 00	91	18.5	c.S.R	<i>D. (D.) rhabdotum</i>
470	do	33 56 40	130 10 10	73	20.7	S.P.	<i>D. (D.) weinkauffi</i> <i>D. (D.) rhabdotum</i> <i>E. nivosa</i>
477	July 28	34 57 25	129 06 30	99	14.3	P.M.Sh	<i>D. (D.) rhabdotum</i>
479	Aug. 8	35 20 18	129 42 40	148	9.9	s.M	<i>D. (D.) rhabdotum</i>
481	do	35 16 38	130 10 00	143	9.1	S	<i>D. (D.) rhabdotum</i> <i>D. (E.) makiyamai</i> <i>E. nivosa</i> <i>E. habutae</i>

(Continued)

Station No.	Date	Locality		Depth (m)	Bottom water temp. (C°)	Bottom character	Species of scaphopods
		Lat. N.	Long. E.				
484	1929 Aug. 9	34°29' 30"	131°00' 20"	93	21.0	S	<i>D. (D.) weinkauffi</i> <i>D. (E.) makiyamai</i> <i>E. habutae</i>
486	Aug. 11	35 12 20	130 57 30	139	5.1	S	<i>D. (D.) rhabdotum</i> <i>E. habutae</i>
488	do	35 35 20	130 46 20	406	1.7	M	<i>D. (L.) crocinum</i> <i>D. (E.) makiyamai</i> <i>E. nivosa</i> <i>E. habutae</i>
491	Aug. 12	35 22 10	131 23 50	112	9.6	M	<i>D. (D.) weinkauffi</i> <i>E. nivosa</i> <i>E. habutae</i>
492	do	35 03 30	131 32 10	132	17.7	m.S	<i>D. (E.) makiyamai</i>
493	do	34 57 00	131 52 20	124	18.1	m.S	<i>D. (D.) weinkauffi</i> <i>D. (L.) coruscum</i> <i>E. nivosa</i>
494	Aug. 12	35 02 00	132 05 30	110	20.9	m.S	<i>D. (D.) weinkauffi</i> <i>E. nivosa</i>
495	Aug. 14	35 17 00	132 10 20	146	15.2	S	<i>D. (D.) weinkauffi</i> <i>D. (D.) rhabdotum</i>
497	do	35 28 12	132 30 50	143	15.2	f.S.	<i>D. (L.) coruscum</i>
498	Aug. 15	35 41 45	132 46 30	139	13.7	m.S	<i>D. (D.) rhabdotum</i> <i>E. nivosa</i> <i>E. habutae</i>
503	Aug. 18	36 05 05	133 16 28	146	16.3	S	<i>D. (D.) weinkauffi</i> <i>D. (D.) rhabdotum</i> <i>D. (E.) makiyamai</i> <i>E. nivosa</i> <i>E. habutae</i>
504	do	36 14 45	133 04 45	106	18.6	Sh.G	<i>D. (D.) weinkauffi</i> <i>D. (L.) coruscum</i> <i>D. (E.) makiyamai</i> <i>E. nivosa</i>
506	do	36 25 00	133 02 00	176	3.3	m.S	<i>D. (D.) rhabdotum</i>
520	Aug. 23	35 43 00	133 07 30	75	23.3	S	<i>E. nivosa</i> <i>E. habutae</i>
530	Aug. 24	35 45 15	134 31 45	183	2.9	M.S	<i>D. (D.) rhabdotum</i>
541	Aug. 25	35 51 18	135 10 00	150	7.3	S	<i>D. (D.) rhabdotum</i>
572	1930 July 27	37 52 55	137 00 45	132	16.8	R	<i>D. weinkauffi</i>
580	July 29	37 17 50	137 17 10	135	14.2	S	<i>D. (E.) makiyamai</i>
595	Aug. 8	37 44 10	138 12 15	145	15.2	R	<i>D. (D.) rhabdotum</i>
599	Aug. 9	38 18 23	138 21 55	181	12.1	m.S	<i>D. (D.) rhabdotum</i>
602	do	38 47 00	138 34 30	205	4.7	R	<i>D. (D.) rhabdotum</i>
611	Aug. 13	38 20 40	138 54 00	143	12.4	S.Sh	<i>D. (D.) rhabdotum</i>
619	Aug. 14	39 16 27	139 29 15	338	4.4	R.G	<i>D. (D.) rhabdotum</i>
622	Aug. 15	39 23 34	139 50 00	218	5.5	s.M	<i>D. (D.) rhabdotum</i>
640	Aug. 22	40 35 45	139 47 00	179	11.4	M	<i>D. (D.) rhabdotum</i>